

# Chapter 2.

## Project Overview

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The Denny Way/Lake Union CSO Control Project is a joint undertaking of the City of Seattle (City) and King County (County). The joint project was originally divided into four phases, including a CSO volume reduction phase (Phase 3) and a CSO treatment phase (Phase 4). Subsequently, King County abandoned the Phase 3 project in favor of a CSO treatment project that will provide storage, solids reduction, and disinfection at a lower total cost than separate Phase 3 and Phase 4 projects. Chapter 2 describes the objectives of each of the project phases in greater detail, identifies the City's goals for the Phase 2 project, and identifies the County's goals for its CSO control project.

### 2.1. City of Seattle's Phase 1 Project

Phase 1 of the joint Denny Way/Lake Union CSO Control Project is the City of Seattle's project to increase the capacity of the City's existing combined sewers along the east and south sides of Lake Union. Phase 1 will eliminate two City combined sewer overflows. The project also includes installation of four flow-control structures and over 2 miles of pipe ranging in size from 18 to 60 inches in diameter. Construction of the Phase 1 improvements began in March 1996 and is scheduled for completion in July 1997. Phase 1 is expected to cost \$16 million (1996 dollars).

The new, larger Phase 1 conveyance system will carry more water, but until Phase 2 and the County CSO control project are complete, the flows collected in Phase 1 must continue to be discharged into Lake Union. Thus, completion of Phase 1 will provide only limited CSO-control benefits. Small rain storms, which have heretofore triggered overflows, will be contained within the larger conveyance system. Two more overflows will be eliminated, and one will be reduced in both volume and frequency. However, the discharge volumes to the lake will remain about the same until Phase 2 and the County project are complete.

A separate Phase 1 Facilities Plan was prepared by the city and submitted to Ecology in June 1995.

### 2.2. City of Seattle's Phase 2 Project

Phase 2 would complete the City's conveyance system upgrade, eliminate one more Lake Union overflow outfall, and link the expanded conveyance system with the storage constructed as part of King County's CSO control project. Phase 2 project elements are expected to include approximately 800 feet of 60-inch to 72-inch-diameter pipe, approximately 2,000 feet of 12-inch to 30-inch pipe, and the necessary facilities to connect the Phase 1 and 2 improvements to the County improvements. The City has budgeted approximately \$6 million for Phase 2 (1996 dollars). Completion of Phase 2 would coincide with the completion of King County's control project, and the City would begin to realize the CSO-control benefits from both Phase 1 and Phase 2

immediately upon completion of Phase 2 and the County project. Following completion of Phase 2, all City overflows along the east and south side of Lake Union would comply with Ecology's one untreated overflow event per outfall per year limitation.

## 2.3. King County's CSO Control Project

As stated in the *1995 CSO Update*, Phase 3 of the Denny Way/Lake Union CSO Control Project consisted of the "design and construction of those facilities that will accommodate the increased City Lake Union flows, will reduce the Dexter CSO discharge to one untreated discharge per year, and will reduce discharges at the Denny regulator station to 50 percent of the baseline annual volume [of 405 million gallons]." The original Phase 3 project was intended as an interim project on the way to full, one-untreated-event-per-year control (the Phase 4 project) required by Ecology regulations. As described in Chapter 1, the preferred alternative selected to meet the Phase 3 criteria originally consisted of an 18-foot-diameter storage tunnel, a 2.5 MG storage tank, a new submarine outfall and extension of the existing outfall, and the pipelines and regulators necessary to make the facilities function. That original Phase 3 alternative has now been abandoned in favor of a new, more cost-effective project that would accept the Lake Union flows and limit untreated overflows at Denny Way to less than one event per year.

In lieu of a storage project described in the *1995 CSO Update*, King County has proposed a project consisting of a 14-foot 8-inch-diameter storage tunnel, submerged baffles to control floatable materials, an influent and effluent pump station, a new outfall, disinfection and dechlorination systems, an extension to the existing Denny Way CSO outfall structure, and piping and regulators necessary for the system to function. Combined wastewater would be stored in the 14-foot 8-inch tunnel. When the tunnel is full, stored wastewater would be discharged through the new outfall. The tunnel would act as a longitudinal clarifier and provide solids removal. The annual suspended solids removal efficiency for the Denny Way system as a whole would exceed 50 percent when solids removal at West Point Treatment Plant are considered. Settleable solids discharge would be limited to 0.3 milliliters per liter per hour (mL/L/hr) on a long-term average basis, and Class A marine water quality standards would be met.